

ABSTRACT

Control mechanism (10) for an endoscope including first and second independently rotatable control knobs (18,20), an inner pinion shaft (22) fixed to the first control knob (18), an outer pinion shaft (28) fixed to the second control knob (20) and coaxial with the inner shaft (22) and an intermediate shaft (34) arranged at least partially inside of the outer shaft (28) and at least partially around the inner shaft (22). O-rings (42,46) between the intermediate shaft (34) and the inner and outer shafts (22,28) seal the interior of the endoscope and transfer torque from the inner or outer shaft (22,28) to the intermediate shaft (34), which is grounded against rotation and therefore does not transfer torque to the other shaft (22,28). A non-cross-coupling control mechanism is achieved in which the rotation of one control knob and its associated shaft does not have any effect on the other control knob and associated shaft.

530,619

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/032730 A1

(51) International Patent Classification⁷: **A61B 1/005**

Michael [US/US]; P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(21) International Application Number:
PCT/IB2003/003947

(74) Common Representative: **KONINKLIJKE PHILIPS ELECTRONICS N.V.**; c/o VODOPIA, John, P.O. Box 3001, Briarcliff Manor, NY 10510-8001 (US).

(22) International Filing Date:
8 September 2003 (08.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/417,835 11 October 2002 (11.10.2002) US
60/485,771 9 July 2003 (09.07.2003) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

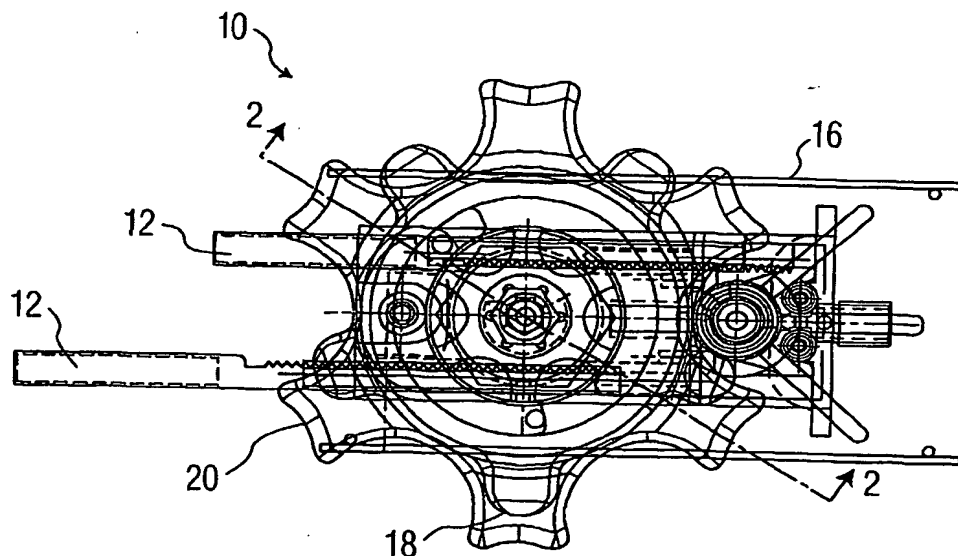
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **PESZYNSKI,**

[Continued on next page]

(54) Title: CONTROL MECHANISM FOR AN ENDOSCOPE



(57) **Abstract:** Control mechanism (10) for an endoscope including first and second independently rotatable control knobs (18, 20), an inner pinion shaft (22) fixed to the first control knob (18), an outer pinion shaft (28) fixed to the second control knob (20) and coaxial with the inner shaft (22) and an intermediate shaft (34) arranged at least partially inside of the outer shaft (28) and at least partially around the inner shaft (22). O-rings (42, 46) between the intermediate shaft (34) and the inner and outer shafts (22, 28) seal the interior of the endoscope and transfer torque from the inner or outer shaft (22, 28) to the intermediate shaft (34), which is grounded against rotation and therefore does not transfer torque to the other shaft (22, 28). A non-cross-coupling control mechanism is achieved in which the rotation of one control knob and its associated shaft does not have any effect on the other control knob and associated shaft.

WO 2004/032730 A1

**Declaration under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,

TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.